Reviewer’s report

Title: Nocturnal finger skin temperature in menstrual cycle tracking: Ambulatory pilot study using a wearable Oura ring

Version: 0 Date: 29 Apr 2019

Reviewer: Victoria H. Jennings

Reviewer's report:

This manuscript will require extensive editing for an English-speaking audience.

I have several comments that should be addressed. Throughout the authors refer to "detecting" [the first day of] menses. From the context, it appears they mean "predicting" rather than "detecting". Please clarify.

This is a very small sample size with missing data (missing temperature measurements) and early exit. This is mentioned in the discussion under shortcomings of the study, but it should also be acknowledged earlier in the study -- perhaps in the section explaining the study design. Why would we think that a data set this small would do anything other than give us an idea about whether the authors are on the right track and should design a larger study?

Please provide more information on One Step Ovulation Testing Midstream. Note also that it measures urinary LH and apparently uses its rise as a proxy for ovulation. This needs to be justified.

The definition of the Calendar approach is faulty. I am unaware of any similar definition in the literature. See instead: Hatcher et al, Contraceptive Technology, 21st edition: Chapter 12, Fertility Awareness-Based Methods, p. 408. In addition, given the sample size and lack of controls, I recommend that the authors eliminate any comparison with a Calendar approach. It does not strengthen the paper.

Also note another recent paper: Handel and Wahlstrom, Digital contraceptives based on basal body temperature measurements. Biomedical Signal Processing and Control, Volume 52, July 2019, pages 141-151. It is relevant to this paper.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Unable to assess

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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I am involved in studies of other approaches to determining the fertile window of the menstrual cycle, including the Standard Days Method and Dot (Dynamic Optimal Timing). None of these involve BBT measurements however. I receive grants from the U.S. government and foundations for conducting these studies. Otherwise, I declare that I have no competing interests.

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